

## Amendments to the Claims

Please amend the claims as follows.

Claims 1-27 (Canceled).

28. (Previously Presented) An unsupported catalyst composition, wherein said unsupported catalyst composition comprises: a Group VIb metal component, a Group VIII metal component, and a refractory oxide material, wherein said refractory oxide material comprises 50 wt % or more titania, on an oxide basis, wherein said Group VIII metal component is present in said unsupported catalyst composition in an amount in the range of from 2 to 80 wt %, based on the total weight of the unsupported catalyst composition and on an oxide basis, wherein said Group VIb metal component is present in said unsupported catalyst composition in an amount in the range of from 5 to 90 wt %, based on the total weight of the unsupported catalyst composition and on an oxide basis, wherein said refractory oxide material is present in said unsupported catalyst composition in an amount in the range of from 5 to 70 wt %, based on the total weight of the unsupported catalyst composition and on an oxide basis, and wherein said titania of said refractory oxide material includes titania powder having an average particle diameter of 50 microns or less.

29. (Previously Presented) An unsupported catalyst composition as claimed in claim 28, wherein the total amount of said Group VIII metal component and said Group VIb metal component in said unsupported catalyst composition is in the range of from 30 to 95 wt % based on the total weight of the unsupported catalyst composition and on an oxide basis.

30. (Previously Presented) An unsupported catalyst composition as claimed in claim 29, wherein said Group VIII metal component, said Group VIb metal component, and said refractory oxide material of said unsupported catalyst composition are a co-precipitate.

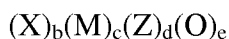
31. (Previously Presented) An unsupported catalyst composition as claimed in claim 30, wherein in excess of 70 wt % of said titania of said refractory oxide material is in the anatase form.

32. (Previously Presented) An unsupported catalyst composition as claimed in claim 31, wherein said titania of said refractory oxide material has a B.E.T. surface area in the range of from 10 to 700 m<sup>2</sup>/g.

33. (Previously Presented) An unsupported catalyst composition as claimed in claim 32, wherein said unsupported catalyst composition has a characteristic loss on ignition (LOI) that is in the range of from 5 to 95%.

34. (Previously Presented) An unsupported catalyst composition as claimed in claim 32, wherein said unsupported catalyst composition is further calcined.

35. (Previously Presented) An unsupported catalyst composition as claimed in claim 32, wherein said unsupported catalyst composition has the following general formula:



wherein

X represents at least one non-noble Group VIII metal;

M represents at least one non-noble Group VIb metal;

Z represents titanium and optionally one or more elements selected from aluminium, silicon, magnesium, zirconium, boron and zinc;

O represents oxygen;

one of b and c is the integer 1; and

d, e, and the other of b and c each are suitably a number greater than 0 such that the molar ratio of b:c is in the range of from 0.2:1 to 10:1, the molar ratio of d:c is in the range of from 0.1:1 to 30:1, and the molar ratio of e:c is in the range of from 3.4:1 to 73:1.

Claims 36-39 (Canceled).

40. (Previously Presented) An unsupported catalyst composition, wherein said unsupported catalyst composition comprises: a Group VIb metal component, a Group VIII metal component, and a refractory oxide material, wherein said refractory oxide material comprises titania and another material selected from the group consisting of alumina, silica, magnesia, zirconia, boria and zinc oxide, and wherein said titania is present in said refractory oxide material in an amount of 50 wt % or more of said refractory oxide material, on an oxide basis, wherein said titania present in said refractory oxide material is an amount in the range of from 70 to 100 wt %, wherein the total amount of said Group VIII metal component and said Group VIb metal component in said unsupported catalyst composition is in the range of from 65 wt % to 95 wt %, based on the total weight of said unsupported catalyst composition and on an oxide basis, and wherein said titania of said refractory oxide material includes titania powder having an average particle diameter of 50 microns or less.

41. (Previously Presented) An unsupported catalyst composition as claimed in claim 40, wherein said unsupported catalyst composition includes a co-precipitate of said Group VIII metal component, said Group VIb metal component, and said refractory oxide material.

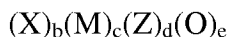
42. (Previously Presented) An unsupported catalyst composition as claimed in claim 41, wherein in excess of 70 wt % of said titania of said refractory oxide material is in the anatase form.

43. (Previously Presented) An unsupported catalyst composition as claimed in claim 42, wherein said titania of said refractory oxide materials has a B.E.T. surface area in the range of from 10 to 700 m<sup>2</sup>/g.

44. (Previously Presented) An unsupported catalyst composition as claimed in claim 43, wherein said unsupported catalyst composition has a characteristic loss on ignition (LOI) that is in the range of from 5 to 95%.

45. (Previously Presented) An unsupported catalyst composition as claimed in claim 44, wherein said unsupported catalyst composition is further calcined.

46. (Previously Presented) An unsupported catalyst composition as claimed in claim 45, wherein said unsupported catalyst composition has the following general formula:



wherein

X represents at least one non-noble Group VIII metal;

M represents at least one non-noble Group VIb metal;

Z represents titanium and optionally one or more elements selected from aluminium, silicon, magnesium, zirconium, boron and zinc;

O represents oxygen;

one of b and c is the integer 1; and

d, e, and the other of b and c each are suitably a number greater than 0 such that the molar ratio of b:c is in the range of from 0.2:1 to 10:1, the molar ratio of d:c is in the range of from 0.1:1 to 30:1, and the molar ratio of e:c is in the range of from 3.4:1 to 73:1.

47. (Previously Presented) An unsupported catalyst composition as claimed in claim 46, wherein the total amount of said Group VIII metal component and said Group VIb metal component in said unsupported catalyst composition is in the range of from 70 wt % to 95 wt %, based on the total weight of said unsupported catalyst composition and on an oxide basis.

Claim 48 (Canceled).

49. (Previously Presented) An unsupported catalyst composition, wherein said unsupported catalyst composition comprises: a Group VIb metal component, a Group VIII metal component, and a refractory oxide material, wherein said refractory oxide material comprises titania in an amount of 50 wt % or more of said refractory oxide material, on an oxide basis, and wherein the total amount of said Group VIII metal component and said Group VIb metal component in said unsupported catalyst composition is in the range of from 65 wt % to 95 wt %, based on the total

weight of said unsupported catalyst composition and on an oxide basis, wherein said titania of said refractory oxide material includes titania powder having an average particle diameter of 50 microns or less.

50. (Previously Presented) An unsupported catalyst composition as claimed in claim 49, wherein said unsupported catalyst composition includes a co-precipitate of said Group VIII metal component, said Group VIb metal component, and said refractory oxide material.

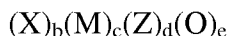
51. (Previously Presented) An unsupported catalyst composition as claimed in claim 50, wherein in excess of 70 wt % of said titania of said refractory oxide material is in the anatase form.

52. (Previously Presented) An unsupported catalyst composition as claimed in claim 51, wherein said titania of said refractory oxide materials has a B.E.T. surface area in the range of from 10 to 700 m<sup>2</sup>/g.

53. (Previously Presented) An unsupported catalyst composition as claimed in claim 52, wherein said unsupported catalyst composition has a characteristic loss on ignition (LOI) that is in the range of from 5 to 95%.

54. (Previously Presented) An unsupported catalyst composition as claimed in claim 53, wherein said unsupported catalyst composition is further calcined.

55. (Previously Presented) An unsupported catalyst composition as claimed in claim 54, wherein said unsupported catalyst composition has the following general formula:



wherein

X represents at least one non-noble Group VIII metal;

M represents at least one non-noble Group VIb metal;

Z represents titanium and optionally one or more elements selected from aluminium, silicon, magnesium, zirconium, boron and zinc;

O represents oxygen;

one of b and c is the integer 1; and

d, e, and the other of b and c each are suitably a number greater than 0 such that the molar ratio of b:c is in the range of from 0.2:1 to 10:1, the molar ratio of d:c is in the range of from 0.1:1 to 30:1, and the molar ratio of e:c is in the range of from 3.4:1 to 73:1.

56. (Previously Presented) An unsupported catalyst composition as claimed in claim 55, wherein the total amount of said Group VIII metal component and said Group VIb metal component in said unsupported catalyst composition is in the range of from 70 wt % to 95 wt %, based on the total weight of said unsupported catalyst composition and on an oxide basis.